Amendments to the claims:

In reading this, text added by the amendment is underlined, and cancelled text appears in strikethrough.

1. (Previously Cancelled)

2. (Currently Amended) A method of generating soft value vectors for soft decision decoding within a TPC system, the method comprising the steps of:
   a. receiving an input signal over a channel; and
   b. approximating a Log-Likelihood-Ratio result of the input signal using embedded software on the system, wherein the Log-Likelihood-Ratio result is independent of a signal to noise ratio value calculable over the channel.

3. (Currently Amended) The method of ~~soft decision decoding according to~~ claim 2 wherein the step of approximating further comprises calculating an actual Log-Likelihood-Ratio value for each of a plurality of m bits per symbol contained in the input signal.

4. (Currently Amended) The method of ~~soft decision decoding according to~~ claim 3 wherein the step of approximating further comprises separating the actual Log-Likelihood-Ratio values into one or more n-regions, wherein n is an integer.

5. (Currently Amended) The method of ~~soft decision decoding according to~~ claim 4 wherein the step of approximating further comprises determining a constant, a_n, by computing a partial derivative for the actual Log-Likelihood-Ratio values in the one or more n-regions.

6. (Currently Amended) The method of ~~soft decision decoding according to~~ claim 5 wherein the step of approximating further comprises determining a slope for the actual Log-Likelihood-Ratio value for each of the plurality of m bits per symbol.

7. (Currently Amended) The method of ~~soft decision decoding according to~~ claim 6 wherein

the slope is determined by use of a linear equation, wherein the linear equation utilizes the constant a_n.

8. (Currently Amended) The method of ~~soft decision decoding according to~~ claim 6 wherein the step of approximating further comprises quantizing the slope for each m bit per symbol.

9. (Currently Amended) The method of ~~soft decision decoding according to~~ claim 8 wherein the step of quantizing is performed using a quantizing equation

$$Quantize = \left(LLR \frac{2^{SOFT\_BITS-1}}{qLIMIT} + 2^{SOFT\_BITS-1} \right)$$

wherein the SOFT_BITS value and the qLIMIT value are dependent on the signal to noise ratio.

10. (Currently Amended) A method of generating soft value vectors for soft decision decoding over a channel within a TPC system, the method comprising the steps of:

a. receiving an input signal over the channel, wherein the input signal has a plurality of m bits per symbol;

b. calculating an actual Log-Likelihood-Ratio value for each of the plurality of m bits per symbol using embedded software on the system;

c. determining a slope for the actual Log-Likelihood-Ratio value of each m bit; and

d. quantizing the slope for each m bit per symbol and generating a Log-Likelihood-Ratio result, wherein the Log-Likelihood-Ratio value is independent of noise over the channel.

11. (Currently Amended) The method of ~~soft decision decoding according to~~ claim 10 further comprising separating the actual Log-Likelihood-Ratio values into one or more n-regions, wherein n is an integer.

12. (Currently Amended) The method of ~~soft decision decoding according to~~ claim 11

further comprising determining a constant a_n by computing a partial derivative for the actual Log-Likelihood-Ratio values in the one or more n-regions.

13. (Currently Amended) The method of ~~soft decision decoding according to~~ claim 12 wherein the slope is determined by use of a linear equation, wherein the linear equation utilizes the constant a_n.

14. (Currently Amended) The method of ~~soft decision decoding according to~~ claim 10 wherein the step of quantizing is performed using a quantizing equation

$$Quantize = \left(LLR \frac{2^{SOFT\_BITS-1}}{qLIMIT} + 2^{SOFT\_BITS-1} \right)$$

wherein the SOFT_BITS value and the qLIMIT value are dependent on the signal to noise ratio.

15. (Currently Amended) A method of generating soft value vectors for soft decision decoding over a modulated channel within a TPC system wherein a signal to noise ratio ~~may be~~ is calculated over the channel, the method comprising the steps of:

a. receiving an input signal over the channel, wherein the input signal has a plurality of m bits per symbol;

b. calculating an actual Log-Likelihood-Ratio value for each of the plurality of m bits per symbol using embedded software on the system, wherein the actual Log-Likelihood-Ratio value includes a SOFT_BITS value for each of the plurality of m bits per symbol;

c. separating the actual Log-Likelihood-Ratio values into one or more n-regions, wherein n is an integer;

d. determining a constant, a_n by computing a partial derivative for the actual Log-Likelihood-Ratio values in the one or more n-regions;

e. calculating a slope by use of a linear equation, wherein the linear equation utilizes the constant a_n; and

f. quantizing the constant a_n by utilizing the quantizing equation

$$Quantize = \left(LLR \frac{2^{SOFT\_BITS-1}}{qLIMIT} + 2^{SOFT\_BITS-1} \right)$$

wherein the SOFT_BITS value and qLIMIT are dependent on the signal to noise ratio, the quantizing equation generating a quantized Logarithmic-Likelihood-Ratio result substantially independent of the signal to noise ratio over the channel.

16. (Currently Amended) A Logarithmic Likelihood Ratio module for generating soft value vectors for soft decision decoding over a modulated channel within a TPC system, the Logarithmic Likelihood Ratio module comprising:
    a. an input module for receiving a plurality of ~~(I,Q)~~ data symbols;
    b. a soft-ware based modulation unit for determining a modulation scheme for calculating a Logarithmic Likelihood Ratio result for the plurality of ~~(I,Q)~~ data symbols, wherein the Logarithmic Likelihood Ratio result is substantially independent of a signal to noise ratio over the modulated signal; and
    c. a converter module for converting the Logarithmic Likelihood Ratio result of the plurality of ~~(I,Q)~~ data symbols into unsigned values.

17. (Previously Added) The Logarithmic Likelihood Ratio module according to claim 16 further comprising a gain module for amplifying the plurality of data symbols by a multiplicative factor.

18. (Currently Amended) The Logarithmic Likelihood Ratio module according to claim 16 further comprising a PSK module for calculating the Logarithmic Likelihood Ratio result by determining a slope of the plurality of ~~(I,Q)~~ data symbols in a phase shift key modulation scheme.

19. (Currently Added) The Logarithmic Likelihood Ratio module according to claim 16 further comprising a QAM module for calculating the Logarithmic Likelihood Ratio result by a determining a slope of the plurality of ~~(I,Q)~~ data symbols over a quadrature amplitude modulation scheme.

20. (Previously Added) The Logarithmic Likelihood Ratio module according to claim 19 further comprising a second QAM module for calculating the Logarthimic Likelihood Ratio result for a portion of the m bits in parallel with the QAM module.

21. (Previously Added) The Logarithmic Likelihood Ratio module according to claim 16 further comprising a multiplexer coupled to the modulation unit, wherein multiplexer provides the Logarithmic Likelihood Ratio result to the converter module.